



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,109	03/20/2007	Eystein Borgen	P19187USPC	4311
29078 7590 10/25/2010 CHRISTIAN D. ABEL ONSAGERS AS POSTBOKS 6963 ST. OLAVS PLASS OSLO, N-0130 NORWAY				
EXAMINER EASTMAN, AARON ROBERT				
ART UNIT 3745		PAPER NUMBER		
NOTIFICATION DATE 10/25/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

hilde.vestli@onsagers.no
vest@onsagers.no
ch@onsagers.no

Office Action Summary

Application No.

10/599,109

Applicant(s)

BORGES, EYSTEIN

Examiner

Aaron R. Eastman

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed August 19, 2010 have been fully considered but they are not persuasive. Applicant argues that USP 6,619,918 (Rebsdorf hereinafter) does not teach establishing a power output range. Examiner points to col. 3 lines 19-31 along with Fig. 2 which shows a power output range that is directly related to wind velocity. Applicant argues that Rebsdorf contains no teaching of making "stress-reducing" pitch adjustments if output power is within this range. Fig. 2 shows 3 ranges of power output. A first range at start up prior to reaching nominal power, a second range that maintains nominal power (P_N), and a third range where the wind velocity is too high to maintain safe standards and the power output would continue to rise in an unsafe manner were the blades not pitched to reduce speed. Applicant argues that Rebsdorf does not make pitch adjustments relative to power output. Since Rebsdorf makes pitch adjustments relative to wind speed which is directly correlated to power output as shown in Fig. 2, a person having ordinary skill in the art at the time of the invention that Rebsdorf makes pitch adjustments relative to power output.
2. Applicant argues that Rebsdorf contains no teachings related to the direction of the wind power plant or that this direction can be altered by altering the pitch angle of the blades. Examiner points to col. 2 lines 44-46 which state "A control unit 4 for controlling the pitch of the blades and possibly the position of the rotor relative to the wind direction" (emphasis in original).

3. Applicant argues that since Rebsdorf discloses a stationary tower that it could not possibly contain any teaching that the pitch of the angle of the blades can be used to control motion of the tower. Any wind tower naturally sways with the wind and this sway (or bend) is greater when the blades are angled to rotate at maximum speed. When the pitch is altered to reduce the rotational speed, the sway or bend is also altered.

Examiner maintains that any wind tower that alters the pitch of the blades is able to control motion of the tower by controlling the pitch angle.

4. Applicant argues that Rebsdorf does not regulate towards a specific thrust value but rather attempts to avoid an unsafe value. Examiner wishes to point out that claim 2 does not disclose regulating towards a specific value but rather "towards a calculated target value". No specific value is disclosed. Examiner wishes to point out that avoiding an unsafe value is being considered the same as regulating towards a calculated target value. In order to have a safe and unsafe value, the safe and unsafe values must first be known or calculated. When Rebsdorf encounters an unsafe value then action is taken to move towards a safe value as pointed out by Applicant on page 5 of Applicant's Remarks.

Claim Objections

5. Claim 1 is objected to because of the following informalities: In claim 1, "in order to bringing" should read --in order to bring--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 6-8 and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 6,619,918 (Rebsdorf hereinafter).
8. In re claim 1 Rebsdorf discloses a method for controlling the output of a wind power plant comprising a converter unit, the method comprising establishing an output power range for the converter unit, measuring the output power of the converter unit, and if the output power of the converter unit is within said range, changing the pitch angle of the rotor blades in order to minimise variations in the thrust of the rotor blades in the wind direction individually or collectively, and if the output power of the converter is outside this range, changing the pitch angle of the rotor blade in order to bring the power output within the range (col. 1 line 55 - col. 2 line 18, col. 2 line 36 - 58, col. 3 line 1 - col. 4 line 4).
9. In re claim 6 Rebsdorf discloses a method according to claim 1, wherein the momentary thrust of the rotor blades in the wind direction can be determined directly or indirectly by means of strain gauges (7, 8), wind velocity measurements, by measuring geometric deflection of the blades, measuring the generator torque and/or measuring the generator output together with simultaneous measurement of the pitch angles of the blade or blades, and/or by measuring or using the pitch moment of the blades about the rotational axis of the pitch bearing either by mounting the blades leaning backwards in the pitch bearing, or by shaping the blades so that the impact point on the blade is

behind the rotational axis of the pitch bearing in relation to the rotational direction of the rotor.

10. In re claim 7 Rebsdorf discloses a method according to claim 1, wherein the pitch angle of the rotor blades is in addition changed with respect to minimising direction errors for the wind power plant.

11. In re claim 8 Rebsdorf discloses a method according to claim 7, wherein the direction error is corrected if it is outside a given range (col. 3 lines 1-10).

12. In re claim 10 Rebsdorf discloses a method according to claim 1, wherein the pitch angles of the rotor blades are adjusted individually and/or independent of each other (col. 3 lines 1-10).

13. In re claim 11 Rebsdorf discloses a method according to claim 1, wherein the wind field in a plane that is substantially perpendicular to the wind direction is predicted by using directly or indirectly measured values of the wind forces acting on the rotor blade or blades that is/are at the front in relation to the rotational direction of the rotor (col. 2 lines 36-58).

14. In re claim 12 Rebsdorf discloses a method according to claim 1, wherein the thrust of the rotor blades in the wind direction is used actively to counter motions of the wind power plant tower by regulating the pitch angles of the rotor blades (col. 2 lines 36-58).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 2-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rebsdorf.

17. In re claims 2-4 Rebsdorf teaches all of the limitations but does not explicitly teach the use of an average wind velocity. Rebsdorf teaches the use of instantaneous measurements (col. 1 line 65 - col. 2 line 5) to determine the pitch of the rotor blades. One of ordinary skill in the wind mill art would have known that there are several ways to determine an acceptable rotor blade pitch angle, for example only, through use of an instantaneous wind velocity or blade deflection measurement or through use of an average wind velocity or blade deflection measurement. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the wind mill of Rebsdorf by using an average wind velocity to determine an acceptable rotor blade pitch angle as an engineering expedient since it provides a way to rule out unacceptable or extreme blade pitch angles due to an instantaneous wind velocity that is a result of a wind gust.

18. In re claim 9 Rebsdorf discloses all of the limitations except for wherein the pitch angle of the rotor blades are adjusted differently for different rotational positions.

19. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Rebsdorf by adjusting the pitch angle of the rotor blades differently for different rotational positions for the purpose of accommodating different wind velocities measured in different locations around the hub.

20. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rebsdorf in view of USP 4,653,982 (Kojima et al. hereinafter).
21. In re claim 5 Rebsdorf discloses all of the limitations except for wherein the thrust of the rotor blades in the wind direction is in addition adjusted by changing the rotor rpm by adjusting the generator rotation resistance moment and/or rotor brakes.
22. Kojima et al. teach the use of a brake (24) against a shaft (21).
23. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Rebsdorf by adding a brake on the shaft as taught in Kojima et al. for the purposes of holding the shaft against rotation (col. 3 lines 33-35 of Kojima et al.).

Conclusion

24. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron R. Eastman whose telephone number is (571)270-3132. The examiner can normally be reached on Mon-Thu 9:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron R. Eastman/
Examiner, Art Unit 3745

/Edward K. Look/
Supervisory Patent Examiner, Art Unit 3745